

INPUT Pulse length should be greater than 1 ms (margin included).  
This is due to RC filtering to avoid unwanted beamswitches.

Calculation:  
 $V_{trigger} = 1.67V$  (going below 1.67V triggers IC)  
 Thevenin equivalent circuit:  
 $V_{open} = 5K / (100K + 5K) * 5V = 238mV$   
 $I_{shortcircuit} = 5V / 100k = 50\mu A$   
 $R_{th} = V_{open} / I_{shortcircuit} = 4.76k$   
 $RC = 4.76k * 0.1\mu F = 476\mu s$   
 $V(t) = 238mV(1 - e^{-t/476\mu s}) + 5e^{-t/476\mu s}$   
**So, for a trigger of 1.67V,  $t = 0.522ms$**

REVISION BLOCK			
REV	DESCRIPTION	DATE	INCORP. BY
-	Initial Release.	10/29/08	EAW

A

B

C

D

J1

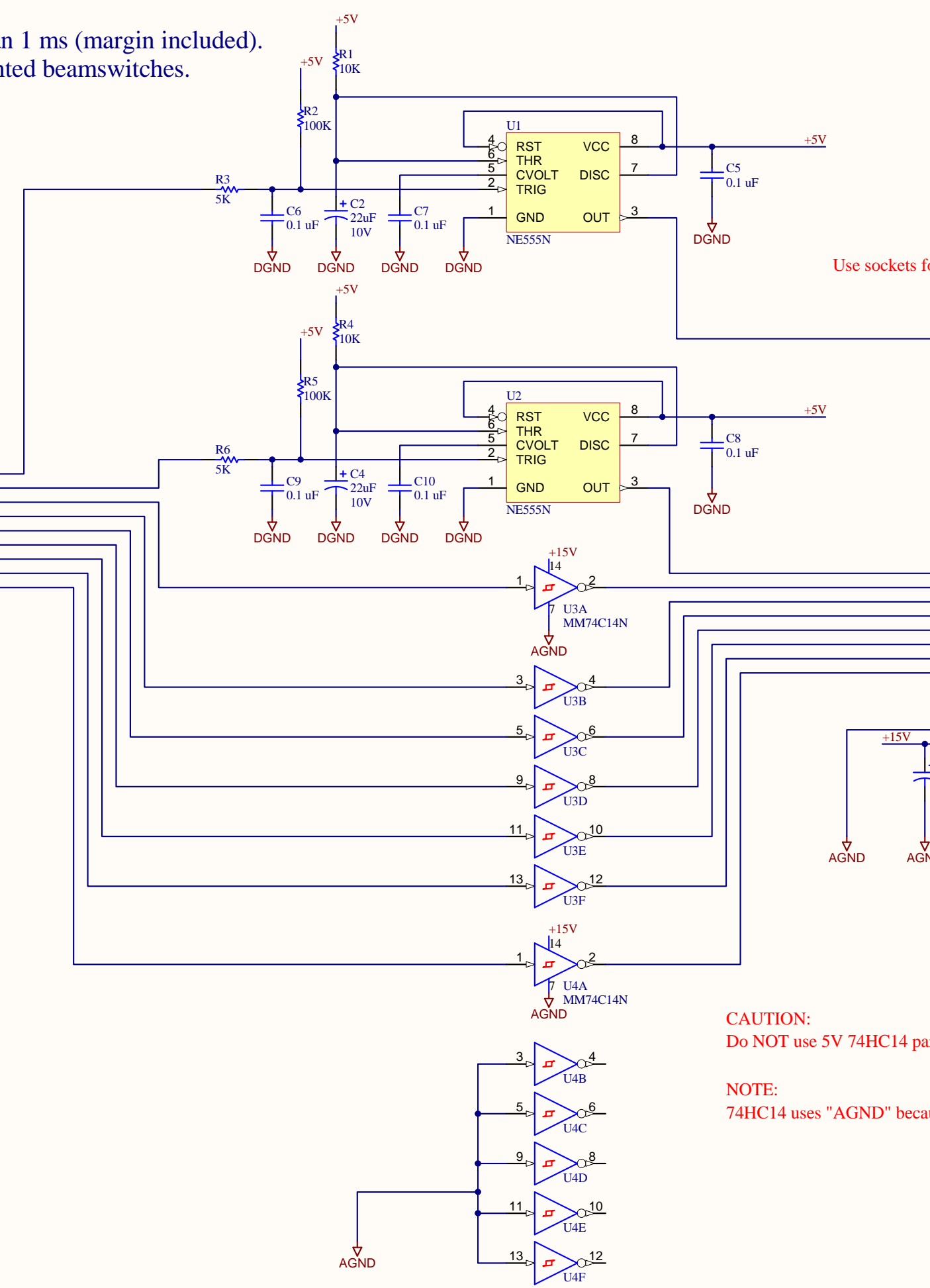
1	OH1 Beamswitch
2	OH2 Beamswitch
3	N_Amp_Dis_Latch
4	S_Amp_Dis_Latch
5	E_Amp_Dis_Latch
6	W_Amp_Dis_Latch
7	W_Dome_Amp_Dis_Latch
8	E_Dome_Amp_Dis_Latch
9	S_Dome_Amp_Dis_Latch
10	NC

5499922-1

Use sockets for U1-U4.

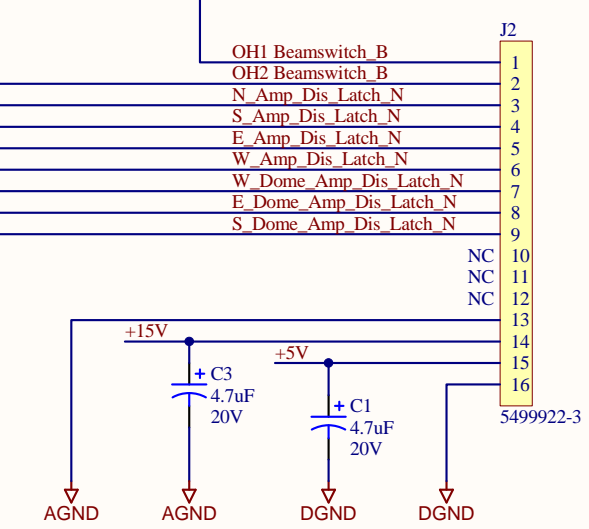
OUTPUT Pulse length should be greater than 200 ms.  
 $Pulse\ length = 1.1 * R1 * C2 = 242ms$   
 $Pulse\ length = 1.1 * R4 * C4 = 242ms$

DWG # T3-2011



CAUTION:  
Do NOT use 5V 74HC14 parts. Use only 15V tolerant parts.

NOTE:  
74HC14 uses "AGND" because that is the same power and GND used by amplifiers.



DWG #	REV	TITLE	
T3-2011	-	HP Pulse Stretcher & NC301 Amp Latch Buffer	
ENGINEER	LAST EDIT	SIZE	SHEET
E. Warmbier	6/21/2010 11:02:30 AM	B	1 of 1
FILE: Y:\public_html\tcs3\Design\T3-2011_ HP Pulse Stretcher & NC301 Amp Latch Buffer.SchDoc			